

Date: Mon, 17 Oct 94 04:30:15 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
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Subject: Ham-Ant Digest V94 #348
To: Ham-Ant

Ham-Ant Digest Mon, 17 Oct 94 Volume 94 : Issue 348

Today's Topics:

 Antenna Analyzers/Old QST magazines
 Anyone have plans for a 220 J-pole?
 Cable Experts
 Copper J-Pole Measurements?
 I need help with antenna calculations
 Is SWR it?
 Q: VLF antenna design (2 msgs)
 Radio Shack Antennas?
 Superior coaxial line

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Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

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(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 13 Oct 1994 11:07:27 GMT
From: hky@np.ac.sg (Hang Kim Yam)
Subject: Antenna Analyzers/Old QST magazines

Antenna Analyzers

I was browsing through the CQ Amateur Radio magazine (August 94) and noticed
the following products for analyzing antennae:

SWR-121 Antenna Analyzers by AEA, Inc.
RF Analyst by Autek Research

I would like to lay my hands on one of them, but would like to find out more from
those who have used them. The only antenna analyzing tool I have is MFJ's

antenna bridge bought about four years ago. Together with one of Optoelectronics' frequency counters, I am quite happy using it except that the antenna bridge does not provide me with information about an antenna's inductance or capacitance.

Information on these and other analyzers (which I am not aware of) would be greatly appreciated.

Old QST magazines

I read in the ARRL antenna handbook that there used to be some articles on constructing coaxial traps in the QST magazine (probably some issues in 1981). It would be greatly appreciated if someone could advise me if it is still possible to find these articles. Are there any CD-ROMs which are compilation of past QST and/or CQ magazines?

Lastly, I would also like to find out if ARRL membership is opened to foreign radio amateurs.

Thank you for your time in reading this posting.

73s de 9V1WI (Hang)

Date: Sun, 16 Oct 1994 06:40:41 GMT
From: wa2ise@netcom.com (Robert Casey)
Subject: Anyone have plans for a 220 J-pole?

In article <37f14i\$bbqs@post.its.mcw.edu> mmjjmm@post.its.mcw.edu (Michael Malloy) writes:

>I just got a 220 HT and would like to build a twin lead or copper j-pole
>to get better coverage. Any help would be appreciated.

>
For a twinlead jpole:

short end of twinlead conductors together
measure 7/10th of an inch from the shorted end, this is where the coax feedline connects, shield to one side, center to other side of twinlead (it doesn't matter which side these go, in respect to which side you will notch below)
(place a few ferrite beads on the coax or make a coil of a few turns of coax to keep RF off the outside of the feedline).
measure from the shorted end 10.5 inches, cut around 1/4 inch notch from one side of the twinlead just beyond the 10.5 inch point.
measure an additional 24.5 inches from the 10.5 inch point above and cut both sides of the twinlead. Total length is $10.5 + 24.5 = 35$ inches
hang vertically for vertical polarization.

Use low loss coax (50 ohm) for the feedline. I used some surplus Ethernet (thick yellow stuff) in good dry condition.

Date: 16 Oct 1994 16:56:38 GMT
From: galen@picea.CNR.ColoState.EDU (Galen Watts)
Subject: Cable Experts

In article <37p6bj\$2q16@ns3.CC.Lehigh.EDU> c002@ns3.CC.Lehigh.EDU (David M. Roseman) writes:
>i was wondering what the address is for the Cable experts so i can get a
>catatlog....

They don't really have a catalog (so the prices are lower), only a few sheets listing their wares.

Cable X-Perts, Inc
113 McHenry Rd. Ste 240
Buffalo Grove, Il 60089
708-506-1886

Date: Sat, 15 Oct 1994 12:03:44
From: betts@nyquist.ee.ualberta.ca (loren betts)
Subject: Copper J-Pole Measurements?

I recently picked up a copper j-pole from a local hamradio friend and want to check its measurements. It has both the 70cm and 2m band poles on it. If anyone can give me the measurements that the poles should be and the measurements where the coax should be connected it would be greatly appreciated.

Thanks
Loren (VE6LCB)

Date: Mon, 17 Oct 1994 09:58:27 +1300
From: G.Moretti@massey.ac.nz (Giovanni Moretti)
Subject: I need help with antenna calculations

In article <37h7skINNdue@scarecrow.mke.ab.com>,
gakabitz@meqlan1.remnet.ab.com (Gary Kabitzke) wrote:

> I want to be able to calculate the approximate impedance of a

> telescoping antenna at different lengths and frequencies.
>
> For instance, I know that at 320mhz a 1/4 antenna should be about 9.2".
> But lets say I want to use a 3" or 4" or maybe a 30" antenna. I see
> loading coils used to resonate CB antenna systems. Is there a general
> calculation that can give me the impedance of an antenna(capacitive or
inductive)
> at a given length and frequency.
>
Gary

There was an article in the (now deceased) HAM RADIO magazine many years ago called "The Antenna Transmission Line Analog" which discussed exactly the question you're asking. It was very readable but unfortunately I can't give you an exact reference - it's at home and I'm not:-).

Anyone else remember these articles (as I remember there were two)?

Gary, if you'd like the exact reference, let me know ...

Cheers
Giovanni
--

Giovanni Moretti "WHATEVER YOU CAN DO, OR DREAM YOU CAN, BEGIN IT.
Computer Science Dept BOLDNESS HAS GENIUS, POWER AND MAGIC IN IT" Goethe
Massey University G.Moretti@massey.ac.nz
Palmerston North, NEW ZEALAND. Ph +64-6-3569099 Fax +64-6-3505611 ZL2BOI

Date: 17 Oct 1994 03:19:11 GMT
From: lester@marlin.gulf.net (Sean Lester)
Subject: Is SWR it?

In article <37mc26\$gq@chnews.intel.com>, Cecil_A_Moore@ccm.ch.intel.com says:

>Hi Sean, what kind of coax did you use and how long is your transmission
>line. You will lose more than half of your power as heat in 100 ft of
>RG-58 on 146 MHz.
>--

I used RG-8 for that very reason. I have about 75ft and figure I lose about 1.3db. My antenna height is 40ft MSL. I know I have some gain, because I can hit a repeater that is 60 miles away with 5 watts. I have also done some simplex work to a boat that was about 40 miles away.

Thanks for the info all.
N2UST (Sean)
Pensacola, FL

Date: Sun, 16 Oct 1994 18:39:56 GMT
From: gary@ke4zv.atl.ga.us (Gary Coffman)
Subject: Q: VLF antenna design

In article <37oolb\$9k2@nz12.rz.uni-karlsruhe.de> vhansen@ipfy.bau-verm.uni-karlsruhe.de (Wolfgang von Hansen) writes:

>
>I need some information on how to build a VLF antenna. It shall receive
>signals at 10-14kHz with an omnidirectional characteristic. It should also
>be quite small [$\leq 1\text{ft}$] in size.
>Currently I am thinking of two ferrite bars (?) which are arranged
>orthogonally. What I need to know is how to calculate the resonant circuit.
>I also need infos on how to build a simple amplifier and connect the
>antenna to it. A transformation of the signal to other frequencies is not
>necessary.

There are two styles of small VLF antennas, the voltage probe, and the magnetic loop. Your proposed solution is a magnetic loop. However, a voltage probe style may be better for omni coverage. A voltage probe antenna is a small vertical whip that would typically use a MOSFET in emitter follower configuration to transform the impedance of the probe down to something manageable to drive selective circuits. Typical circuits can be found in Loran C equipment.

The magnetic loop is a very common approach for MF and LF receiving antennas. It has the fault for your application of having a sharp null perpendicular to the plane of the loop windings. If you combine the signals of two orthogonal loops using a non-additive mixer (IE a chopper), you can simulate an omni pattern fairly well.

Resonance is calculated by the formula $F=1/(2\pi\sqrt{L\cdot C})$ with frequency in Hertz, inductance in Henries, and capacitance in Farads. Calculating the number of turns for a given inductance on a ferrite is best done by consulting manufacturer's literature. There will be charts giving a value called A_l for the particular material. This is a parametric value depending on permeability and the effective magnetic cross section of the material chosen. The number of turns required is then $T=100\sqrt{L/A_l}$ where L is the desired inductance in microHenries.

While you will typically use discrete active devices at the

begining of your TRF amplifier chain for good noise figure,
OPamps are typically used to obtain the bulk of the gain,
and gyrators are used to give the large values of inductance
needed for resonant circuits. Back end processing can be
by use of switched capacitor filters, or today by DSP
chips.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		emory!kd4nc!ke4zv!gary
534 Shannon Way		Guaranteed!		gary@ke4zv.atl.ga.us
Lawrenceville, GA 30244				

Date: 17 Oct 1994 04:15:40 GMT
From: monta@pixel.mit.edu (Peter Monta)
Subject: Q: VLF antenna design

gary@ke4zv.atl.ga.us (Gary Coffman) writes:

> > [VLF antenna, 10--14 kHz]
>
> There are two styles of small VLF antennas, the voltage probe, and
> the magnetic loop. Your proposed solution is a magnetic loop. However,
> a voltage probe style may be better for omni coverage. A voltage probe
> antenna is a small vertical whip that would typically use a MOSFET in
> emitter follower configuration to transform the impedance of the probe
> down to something manageable to drive selective circuits. Typical circuits
> can be found in Loran C equipment.

It sounds like he wants an Omega antenna, from the frequencies.
I've heard that loops can give lower noise at VLF, since
man-made noise is on the high-impedance side; still, the
extra headaches of diversity for the two loops might
be too much.

Peter Monta monta@image.mit.edu
MIT Advanced Television Research Program

Date: Sun, 16 Oct 94 08:59:13 -0500
From: darrylb@delphi.com
Subject: Radio Shack Antennas?

Mike Basinger <dbasinge@nickel.ucs.indiana.edu> writes:

>I'm thinking about buy an car antenna for my HTX-202. Are the antennas
>they sell at Radio Shack any good, or are they basically junk?

I used a RS 5/8 wave 2m mag mount for over a year until I damaged it.
It was a fine antenna.

Date: Sat, 15 Oct 94 17:47:00 -0500
From: art.harris@woodybbs.com (Art Harris)
Subject: Superior coaxial line

In discussing the use of 75 ohm hardline with a 50 ohm rig, without
using a matching device, WCNK@YOGI.LEIS.CC.BELLCORE.COM wrote:

WC>loss will be negligible ?
WC>Perhaps , if only receiving, xmtng is another story.

The loss in DB will be the same whether transmitting or receiving! And
in either case the loss due to the mismatch will be negligible.

Art N2AH

Date: Sun, 16 Oct 1994 10:39:22 +0000
From: G3SEK@ifwtech.demon.co.uk (Ian G3SEK)

References<19940ct5.140644.23655@arrl.org> <373266\$30m9@info2.rus.uni-
stuttgart.de>, <682014245wnr@ifwtech.demon.co.uk>
Reply-To: G3SEK@ifwtech.demon.co.uk
Subject: Re: VHF/UHF DX book

Joe Mack NA3T wrote:

: Thank you for the VHF/UHF DX book, which is the best ham book I have read
: in probably 15-20 years. Very inspiring.

<blush!>

The book was written by people with a passionate interest in the subject.
I think that shows, and it makes a difference.

: I got mine by chance. WHEN I tried to get another for a friend
: I couldn't find it anywhere in the US, for love or money. THE ARRL
: doesn't have it, major ham sotres don't have it, minor ham stores
: don't have it. There isn't an address to get it from in the front

: cover. How do I get one, if I only have US\$? (getting a bank draft is
: a minor pain and costs \$5.00).

DIR Publishing's only agents in the USA are ARRL, who sold out of their
first order several months ago and are determined to wait for a second
printing before re-ordering. Unfortunately a second printing may be some
way off, because a worthwhile print run involves very large up-front
costs. The irony is that when the second printing does eventually arrive,
ARRL will find that it's not significantly different from the first -
mostly minor typographical corrections. DIR has tried to tell them that,
but to no avail.

Meanwhile, RSGB in England have plenty of copies of the first printing.
They accept any major credit card, which is by far the cheapest way to
make international payments. It's Sunday now, so I'll inquire to RSGB
tomorrow and then post another reply with the all-in cost of having a
copy mailed to the USA.

73 from Ian G3SEK	Editor, _The_VHF/UHF_DX_Book_
Abingdon, England	
g3sek@ifwtech.demon.co.uk	"In Practice" columnist for RadCom (RSGB)

End of Ham-Ant Digest V94 #348
